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SOURCE Zarya Vostoka.

GEORGIAN SCIENTISTS ASSIST SOVIET CONSTRUCTION PROJECTS

To utilize more effectively the available scientific force in Georgia, the presidium of the Academy of Sciences Georgian SSR formed a committee for assisting the new hydroelectric and irrigation construction projects: the Kuybyshev and Stalingrad hydroelectric construction projects, the Main Turkmen Canal, the Kakhovka Hydroelectric Station, and the South Ukrainian and North Crimean Canal.

Included in this committee are N. I. Muskhelishvili, President of the Academy of Sciences Georgian SSR, and numerous other academy members; chairmen of many other leading scientific institutions, and planning and construction organizations of the republic. Within the committee, sections on power engineering, hydraulic engineering, construction designing, and production capacity and development were formed. Many institutes of the Academy of Sciences Georgian SSR and the Council for Studying the Productional Capacity of Georgia have expressed a desire to take part in this work. Many plans have been presented on various themes; these plans will be of use to the construction projects. Also, a plan for scientific research work during 1951-55 has been worked out.

At present, the problem of joining a series of electric power systems and the creation of a single high-voltage system in European USSR is being studied. The leading electric power stations of this system will be the new Kuybyshev and Stalingrad GES. This system, the largest in the world, will supply hundreds of cities and thousands of industrial enterprises, kollektives, and sovkhozes in the more thickly populated part of the USSR. The Power Engineering Institute of the Academy of Sciences Georgian SSR, in cooperation with the Water Power Engineering Institute of the Academy of Sciences Azerbaydzhan SSR and the Power Engineering Institute imeni G. M. Krzhizhanovskiy of the Academy of Sciences USSR, is working on the theme, "Research on the Caucasus Section of a Single High-Voltage Network." The work is being coordinated by the Power Engineering Institute, Academy of Sciences Georgian SSR.

In 1951, the problem of joining the electric power systems of the Transcaucasus and North Caucasus, the possibility of connecting the Caucasus section with the new Volga hydroelectric power plants and then with the single

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high-voltage network will be studied. Special attention will be given to the voltage of the connecting transmission lines, the best routes for them to follow, and the exchange of electric power between the Volga GES and electric power stations in the Caucasus section. One of the important problems in this direction is the automatic regulation of the frequency and current of the transmitted power between the joined electric power systems. The Power Engineering Institute has worked out a series of theoretical and practical tasks connected with this problem.

A series of hydroelectric power stations will be built on the Volga between Kalinin and Stalingrad. The Ivan'kovskiy, Uglich, and Scherbakov GES have already been built, the Gor'kovskiy GES is under construction, and construction on the Kuybyshev and Stalingrad GES is being started. The combined reservoir area for these GES totals 25,000 square kilometers. The volume of the reservoir totals many tens of cubic kilometers. Utilization of this uninterrupted series of enormous water reservoirs presents an exceedingly complicated problem. The Power Engineering Institute of the Academy of Sciences Georgian SSR is working out a method to determine the water-discharge capacity of the series of reservoirs in relation to hydrological and power factors. The results of this work will be utilized by workers in the future operation of these reservoirs and by a dispatching administration of the Volga GES. The results will also be used for planning the output of these stations.

Vast areas will be irrigated by the GES and canals under construction. Scientists of the Power Engineering Institute, under the direction of A. I. Didebulidze, Academy of Sciences Georgian SSR, will study the power side of the sprinkler method of irrigation which is the system which uses the water supply most efficiently. The Institute of Construction Affairs under the direction of K. G. Zavriyev, Academy of Sciences Georgian SSR, will do important work in this field. The institute has established direct contact with the Main Turkmen Canal construction project and "Sredazgidrostroy" has approved plans proposed by the institute. Because the Main Turkmen Canal must pass through regions of great seismicity, the institute will make a seismographic map of the canal route and will aid the construction project in making earthquake-proof hydrotechnical, industrial, and civilian structures.

As vast quantities of concrete (1,500,000 cubic meters) must be laid by the builders of the Main Turkmen Canal, the problem of utilizing local materials for concrete aggregate is an important one. The Institute of Construction Materials, Academy of Sciences Georgian SSR, will find methods of utilizing Kara Kum sand which is not suitable in its natural form. Other important problems will be worked out by the cooperation of individual institutes and construction organizations. The Institute of Construction Affairs, in cooperation with designers of the Rustavi and Tbilisi Scientific Research Institutes of Hydroelectric Structures and Power Engineering, will conduct tests to match various types of light cement with various aggregates (shell rock of the Crimea, tufa, etc.). The Tbilisi Scientific Research Institute of Hydroelectric Structures and Power Engineering, which for many years has successfully done research on producing transmission-line towers of centrifuged concrete, will work out methods of testing and laying concrete for the hydroelectric installations.

Concrete, sand, and gravel will frequently be transported in steel pipes lined with basalt to cut down friction wear. The Council for Studying Production Capacity, Academy of Sciences Georgian SSR, has suggested that the raw material be taken from pits in the area around Kutaisi. Experimental plant tests of this basalt were conducted in 1949 - 1950. The council suggests that Bentonite taken from the Tsikhis-Ubanskiy deposit in western Georgia be used in the canal beds as a waterproofing material.

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Many other institutes of the Academy of Sciences Georgian SSR have expressed a desire to take part in the projects coordinated by the Committee for Assisting the Construction Projects. The Institute of Physics and Geodesy will aid in collecting meteorological, climatic, and seismographic data. The Institute of Chemistry will make methods for producing color lake available to the construction projects.

The Institute of Soil Sciences, Agricultural Chemistry, and Improvement; the Botanical Institute, and the Institute for Plant Protection will take part in scientific expeditions in construction area of the Main Turkmen Canal.

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